

Engineering Change Proposal No. 1
Revision No. 2
Nature of Change

28 January 1964

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I. Hardware Change

A. These modifications will require replacement of the present Destination Select Switch on the Nav Panel. This new Select Switch will have the following positions:

- 1) Stored Auto
- 2) Stored Fix
- 3) Stored Manual
- 4) Variable Fix
- 5) Variable Destination

The present face plate on the Nav Panel will be replaced with one containing the necessary engraving information.

B. An additional panel with two digit switches, a store button and light will be mounted on the front instrument panel.

II. Programming Change

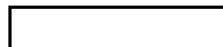
The 330 Computer program will be changed from a relocated pole to a free azimuth program.

III. Operational Features of Hardware and Programming Change

The hardware and programming modifications will provide the following features:

- 1) Increases the number of stored destinations to 42. These 42 destinations will be separated into two groups. Zero (0) to twenty-six (26) will be used to store mission destinations, refueling points, and fix points. The great circle path will be flown between destinations in the 0 to 26 group. Group II, or points twenty-seven (27) to forty-two (42) will be used for emergency fields and for flight testing, if desired. The shortest route possible will be flown for destinations from 27 to 42. This means that when using destinations 27 to 42 the steering mode will be ADF.

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- 2) Automatic selection of destinations will be provided for stored destinations 0 to 26 inclusive. When in the automatic mode, the selection of destinations will be provided with turns using the maximum bank angle to provide a smooth entrance on to the next course. Turns will be initiated before reaching the destination and the turn point will depend on vehicle velocity and heading change to the new course. (The present 108 mile restriction will be eliminated.)
- 3) A store light will be provided in the new panel which will be mechanized as follows:
 - a) When in the automatic mode the light will be energized when the destination number on the digi switches and the destination the vehicle is approaching are not matched. When they are matched the light will go out.
 - b) In all other modes the light will be energized when a pilot action is required. When a new destination or fix is selected the light will come on. When the store button is pushed and the system accepts the new input the light will go out. The light will also come on if a destination is passed and no action is taken.
- 4) Steering signals to the autopilot will be programmed so as to provide smooth steering over all mach numbers.
- 5) INS preflight tests can be conducted with the vehicle at any known heading, thereby eliminating the necessity of aligning the vehicle to a North Heading.
- 6) Computer self-check capability will be improved by using reasonableness checks and redundant storage of basic quantities.
- 7) A positive indication of a fix reject will be provided, by driving a light on the malfunction panel.
- 8) The pilot will be able to select variable destinations and fixes during flight, as in the past.